**NAME: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ DATE: \_\_\_\_\_\_\_\_\_\_\_\_\_ PER. \_\_\_\_.**

**OSMOSIS – MAKE UP LAB**

**Introduction**

Osmosis is the diffusion of water across a semipermeable membrane, from an area of high concentration to an area of low concentration. Osmosis also occurs in response to changing concentrations of water-soluble (substances that can dissolve in water) solutes. Osmosis can be observed in individual cells, or in collections of cells as in multicellular organisms or their structures. In this investigation will observe different cells in different solutions and see what happens to them because of osmosis.

**Problem:** Under what conditions do cells gain or lose water?

**Pre-lab Discussion (this counts as a homework assignment)**

1. Explain what is meant by “water soluble.” \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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2. What is meant by “selectively permeable?” \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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3. How does osmosis maintain homeostasis? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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4. What types of cells will you be observing? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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5. What are the three types of solutions you will be using? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**Procedure:**

1. Go to the following website and follow the directions:

<http://www.glencoe.com/sites/common_assets/science/virtual_labs/LS03/LS03.html>

2. There a 3 icons at the bottom of the directions. Scroll over them and make sure you fill out and print the “Table” to attach it to your final lab.

**RESULTS**

1. Attach your data table that you printed out from the website showing your results.

2. Make a bar graph showing your results.

**CONCLUSIONS**

1. Compare isotonic, hypotonic and hypertonic solutions, be sure to include how the water moves in each type of solution.

2. In which type of solution did the blood cell lose mass; gain mass? Why?

3. In which type of solution did the elodea cell lose mass, gain mass? Why?

4. In which type of solution did the paramecium lose mass; gain mass? Why?

5. Could elodea or a paramecium that lives in freshwater be expected to survive if they were transferred to the ocean? Why or why not?

6. If you were to grill a steak would it be better to salt it before or after you cooked it? Explain why in terms of osmosis.

7. Why does salad become soggy and wilted when dressing has been on it for a long time. Explain why in terms of osmosis.

8. A good way to kill weeds is to pour salt on the ground around the plant. Explain why this is effective in terms of osmosis and this virtual lab.

9. If you were eggs in this experiment, why would you have to remove the calcium from the shells of the eggs?

10. In the past, meat was preserved by packing it in salt. Explain how this technique might prevent the growth of microorganisms.